

CLAIMS

1. A vector including a nucleotide sequence encoding an HIV Gag polypeptide, wherein the nucleotide sequence encoding the Gag polypeptide comprises a sequence having at least 90% sequence identity to the sequence set forth in SEQ ID NO: 1.
2. A vector including a nucleotide sequence encoding an HIV Gag polypeptide, wherein the nucleotide sequence encoding the Gag polypeptide comprises a sequence having at least 90% homology to the sequence set forth in SEQ ID NO: 2.
3. A vector according to either of claims 1 or 2, which is a plant vector.
4. A vector according to claim 3, which is a tobacco mosaic virus vector.
5. A vector according to claim 3, which is an *Agrobacterium tumefaciens* containing a T-derived plasmid construct.
6. A vector according to either one of claims 1 or 2, which is a baculovirus vector.
7. A cell including a vector according to any one of claims 1 to 6, wherein the nucleotide sequence is operably linked to control elements compatible with expression in the cell.
8. A cell according to claim 7, which is a plant cell.
9. A cell according to claim 8, which is a *N. benthamiana* plant cell.
10. A cell according to claim 7, which is an insect cell.
11. A cell according to claim 10, which is an Sf 21 or Sf 9 cell.

12. A method of producing an HIV-1 immunogenic protein or a related polypeptide, the method comprising the steps of:
 - (a) introducing a vector or vector system into a host cell, the vector or vector system including a nucleic acid sequence encoding the HIV-1 immunogenic protein or related polypeptide derived by substitution, deletion and/or insertion of one or more nucleotides, and/or extension or truncation of one or both ends thereof, the nucleic acid sequence having at least 90% identity to the sequence set forth in SEQ ID NO:1;
 - (b) causing expression of the nucleic acid sequence in the host cell; and
 - (b) recovering the resulting HIV-1 immunogenic protein or related polypeptide produced within the host cell.
13. A method of producing an HIV-1 immunogenic protein or a related polypeptide, the method comprising the steps of:
 - (a) introducing a vector or vector system into a host cell, the vector or vector system including a nucleic acid sequence encoding the HIV-1 immunogenic protein or related polypeptide derived by substitution, deletion and/or insertion of one or more nucleotides, and/or extension or truncation of one or both ends thereof, the nucleic acid sequence having at least 90% identity to the sequence set forth in SEQ ID NO:2;
 - (b) causing expression of the nucleic acid sequence in the host cell; and
 - (b) recovering the resulting HIV-1 immunogenic protein or related polypeptide produced within the host cell.
14. A method according to either one of claims 12 or 13, wherein the vector is a plant vector.
15. A method according to claim 14, wherein the vector is a tobacco mosaic virus vector.
16. A method according to claim 14, wherein the vector is an *Agrobacterium tumefaciens* containing a T-derived plasmid construct.

17. A method according to either one of claims 12 or 13, wherein the vector is a baculovirus vector.
18. A method according to any one of claims 12 to 16, wherein the host cell is a plant cell.
19. A method according to claim 18, wherein the plant cell is a *N. benthamiana* plant cell.
20. A method according to any one of claims 12, 13 and 17, wherein the host cell is an insect cell.
21. A method according to claim 20, wherein the insect cell is an Sf 21 or Sf 9 cell.
22. An HIV-1 protein or polypeptide that is produced according to the method of any one of claims to 12 to 21.
23. A protein or polypeptide according to claim 22, which is an HIV-1 Pr55 Gag protein.
24. A protein or polypeptide according to either of claims 22 or 23, which is assembled into the form of virus-like particles (VLPs).
25. A vaccine for use in the treatment or prophylaxis of HIV infection in a mammal, the vaccine including virus-like particles of proteins or polypeptides as described in any one of claims 22 to 24.
26. A vaccine according to claim 25, which induces an immunogenic response to the virus-like particles in a suitable susceptible host.
27. A vaccine according to either one of claims 25 or 26, which includes a pharmaceutical excipient and/or adjuvant, and a therapeutically effective amount of the virus-like particles.